

REMARKS

Claims 41, 60, and 108 have been amended. Claims 1-30, 44, 45, 49-59, 62-64, 66, 67, 69-83, 87, and 93-106 have been previously canceled without prejudice. Claims 31-39, 41, 46-48, 60, 61, 84-86, 88-90, 92, 107-111, 114, 115, and 117 remain pending in the application. Applicant reserves the right to pursue the original and other claims in this and other applications. Applicant respectfully requests that the final rejection be reconsidered and withdrawn.

Claim 108 stands objected to because it depends on itself. The claim has been amended to depend on claim 107 and thus obviates this objection. Applicant respectfully requests that this objection be withdrawn.

Claims 41 and 60 stand objected to because the word “first” should be deleted. The claims have been amended and thus obviate this objection. Applicant respectfully requests that this objection be withdrawn.

Claims 31-39, 41, 46-48, 60, 61, 84-86, 88-90, 92, 107-111, 114, 115, and 117 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2004/0081446 (Compton) in view of U.S. Publication No. 2002/0030152 (Afghahi). The rejection is respectfully traversed.

Independent claim 31 recites a method of operating pixels in any array comprising, among other steps, “opening a mechanical shutter; [and] simultaneously resetting all the pixels of the array to begin a first integration period.”

Similarly, independent claim 41 recites an imaging device comprising, among other elements, “a mechanical shutter; and a timing and control circuit configured to open the mechanical shutter, [and] simultaneously operate each reset transistor to reset the photoconversion devices in all pixels of the array to begin an integration period.”

Independent claim 60 recites a timing circuit comprising, among other elements, “circuitry for applying a first driving voltage to simultaneously operate at least one transistor of all pixels of the array to reset a photoconversion device of each respective pixel to a predetermined voltage to begin an integration period.”

Independent claim 84 recites an imager device comprising, among other elements, “global circuitry for simultaneously resetting a photoconversion device of each pixel; and a mechanical shutter for ending the integration period when the mechanical shutter is moved from an open position to a closed position”

Likewise, independent claim 107 recites a method of operating an imaging device comprising, among other steps, “opening a mechanical shutter; [and] simultaneously resetting all pixels of an array to begin a first integration period.”

Compton discloses a method of resetting pixels in a row-by-row manner, in synch with the shutting of a mechanical shutter. Afghahi discloses globally resetting pixels. The Office action attempts to combine Compton’s method of resetting pixels with Afghahi’s global reset—however, one skilled in the art would not make that combination. Specifically, Compton teaches away from modifying its disclosure with Afghahi.

An invention is not obvious over references that teach away from the combination of the references. § 2144.05 of the M.P.E.P. states that “obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” In re Geisler, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). “When the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious.” KSR, 550 U.S. at 416, 82 USPQ2d at 1395.

Here, Compton teaches away from globally resetting all pixels of an array as disclosed in Afghahi. The Office Action accurately states that Compton does not disclose simultaneously resetting all pixels of an array to begin a first integration period. Office Action at 5. The Office

Action attempts to cure Compton's deficiency by modifying it with Afghahi's teaching of globally resetting all pixels of the array. However, Compton specifically teaches incrementally resetting rows of pixels in sync with a mechanical shutter. Compton at ¶ 0019. Compton expressly states that it performs incremental resetting for the express purpose of avoiding a global reset. Compton at ¶ 0005, 0008. Compton states, "the present invention has the following advantages.... without using electronic global shutter" (emphasis added). Compton ¶ 0008. That is, the purpose of Compton's disclosure is not to use a global reset. Applying a global reset to Compton would be antithetical to the purpose and disclosures of Compton because Compton teaches away from simultaneously resetting all pixels of an array. Combining the global reset of Afghahi with the disclosure of Compton is non-obvious for at least these reasons. Applicant respectfully requests that the rejection be withdrawn and the claims allowed.

Claims 21-40 and 117 depend from claim 31 and are allowable along with claim 31. Claims 42-48 depend from claim 41 and are allowable along with claim 41. Claim 61 depends from claim 60 and is allowable along with claim 60. Claims 85-92 depend from claim 84 and are allowable along with claim 84. Claims 108-116 depend from claim 107 and are allowable along with claim 107. For at least these reasons, withdrawal of this rejection is respectfully requested.

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In view of the above, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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